

CLAIMS

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1. A gene encoding a protein having activity to synthesize aurones by using chalcones as substrates.

2. A gene as set forth in claim 1 wherein said protein is a polyphenol oxidase.

3. A gene as set forth in claim 1 ~~or 2~~, encoding a protein having the amino acid sequence described in SEQ ID No. 2 or an amino acid sequence modified by deletion, substitution and/or addition of one or more amino acids relative to that amino acid sequence, and having activity to synthesize aurones by using chalcones as substrates.

4. A gene as set forth in claim 1 ~~or 2~~, capable of hybridizing under stringent conditions with a nucleic acid having the nucleotide sequence described in Sequence ID No. 1, and encoding a protein having activity to synthesize aurones by using chalcones as substrates.

5. A gene as set forth in claim 1 ~~or 2~~ having sequence homology of at least 55% relative to the amino acid sequence described in SEQ ID No. 2, and encoding a protein having activity to synthesize aurones by using chalcones as substrates.

6. A vector comprising a gene as set forth in ^{Claim 1} ~~any~~ one of claims 1 through 5.

7. A host transformed by a vector as set forth in claim 6.

8. A host as set forth in claim 7 wherein said host is a microorganism or animal cell.

9. A host as set forth in claim 7 wherein said host is a plant cell or plant.

10. A protein encoded by a gene as set forth in ^{Claim 1} ~~any~~ one of claims 1 through 5.

11. A protein able to specifically bind with antibody to the protein as set forth in claim 10, and having activity to synthesize aurones by using chalcones as substrates.

12. A process for production of said protein characterized by culturing or growing a host as set forth

in claim 7, and harvesting or purifying from said host a protein having activity to synthesize aurones by using chalcones as substrates.

a 5 13. A process for harvesting or purifying a protein having activity to synthesize aurones by using chalcones as substrates, characterized by utilizing specific binding with antibody to the protein as set forth in claim 10 ~~or claim 11~~.

10 14. A process for synthesizing aurone characterized in that a protein as set forth in claim 10 ~~or claim 11~~ is allowed to act on chalcones.

a 15 15. A process for synthesizing aurones in a plant characterized by transforming a plant or plant cells with a gene as set forth in ~~any one of claims 1 through 5~~, expressing said gene, and using the formed protein to synthesize aurones within a plant.

20 16. A plant in which flower color is regulated by introducing a gene as set forth in any one of claims 1 through 5, or its progeny or tissue having the same properties.

17. A plant as set forth in claim 16 in which flower color is regulated to yellow, or its progeny or tissue having the same properties.

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